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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,659	02/24/2004	David H. Levy	13159-012001	2709

26161 7590 05/17/2005

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EXAMINER

WANG, JIN CHENG

ART UNIT PAPER NUMBER

2672

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/785,659	<b>Applicant(s)</b> LEVY ET AL.	
	<b>Examiner</b> Jin-Cheng Wang	<b>Art Unit</b> 2672	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/12/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Takala et al.

U.S. Patent No. 6,788,294 (hereinafter Takala).

Claim 1:

Takala teaches a method of changing the visual appearance of a designated area of a data input device, the method comprising

Providing a data input device with multiple visible areas (*e.g., using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-67 and column 7, lines 24-40; see also Fig. 1 and column 5, lines 50-65*), at least one of the areas comprising a designated area containing a field-stable electrophoretic ink (*E-ink is a field-stable electrophoretic ink and Takala discloses providing E-*

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*ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8); and*

Passing a field through only selected regions of the field-stable electrophoretic ink in the designated area to alter a visual characteristic of the ink in the selected regions to form a desired graphic label visible within the designated area (*Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; see also Fig. 1 and column 5, lines 50-65 and column 6-8).*

Claim 2:

The claim 2 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of the designated area being an area of a digitizer input device. However, Takala further discloses the claim limitation of the designated area being an area of a digitizer input device (column 3, lines 35-45).

Claim 3:

The claim 3 encompasses the same scope of invention as that of the claim 2 except additional claim limitation of the designated area being a closed area surrounded by other areas of the digitizer and forms an adaptable button. However, Takala further discloses the claim limitation of the designated area being a closed area surrounded by other areas of the digitizer and forms an adaptable button (column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20).

Claim 4:

The claim 4 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the designated area is of an exposed surface of a manipulable keycap. However, Takala further discloses the claim limitation that the designated area is of an exposed surface of a manipulable keycap (Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20).

Claim 5:

The claim 5 encompasses the same scope of invention as that of the claim 4 except additional claim limitation that the input device is a keypad wherein the keycap is manipulated by a user to depress the keycap relative to the keypad. However, Takala further discloses the claim limitation that the input device is a keypad wherein the keycap is manipulated by a user to depress the keycap relative to the keypad (Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20).

Claim 6:

The claim 6 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of an electric field. However, Takala further discloses an electric field (Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20).

Claim 7:

The claim 7 encompasses the same scope of invention as that of the claim 6 except additional claim limitation that the electric field is generated by electrically conductive elements within the device. However, Takala further discloses the claim limitation that the electric field is generated by electrically conductive elements within the device (column 6, lines 21-40).

Claim 8:

The claim 8 encompasses the same scope of invention as that of the claim 7 except additional claim limitation of the input device being a keypad, the designated area being of an exposed surface of a manipulable keycap of the keypad, and wherein at least one of the electrically conductive elements is disposed within the keycap. However, Takala further discloses the claim limitation of the input device being a keypad, the designated area being of an exposed surface of a manipulable keycap of the keypad, and wherein at least one of the electrically conductive elements is disposed within the keycap (Fig. 1 and column 5, lines 50-67, column 6, lines 1-40).

Claim 9:

The claim 9 encompasses the same scope of invention as that of the claim 7 except additional claim limitation that the electrically conductive elements comprise conductors shaped to form an intended graphic image. However, Takala further discloses the claim limitation that

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the electrically conductive elements comprise conductors shaped to form an intended graphic image (column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55).

Claim 10:

The claim 10 encompasses the same scope of invention as that of the claim 7 except additional claim limitation of the electrically conductive elements being arrays of transistors. However, Takala further discloses arrays of transistors (column 6, lines 21-57).

Claim 11:

The claim 11 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the field is passed through the ink by a printer placed in close proximity to the designated area. However, Takala further discloses the claim limitation that the field is passed through the ink by a printer placed in close proximity to the designated area (*e.g., the printer is connected to the convergence device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55*).

Claim 12:

The claim 12 encompasses the same scope of invention as that of the claim 11 except additional claim limitation that the input device is an assembled keypad and the printer is placed in close proximity to exposed surfaces of keycaps of the assembled keypad. However, Takala further discloses the claim limitation that the input device is an assembled keypad and the printer is placed in close proximity to exposed surfaces of keycaps of the assembled keypad (*e.g., the printer is connected to the convergence device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55*).

Claim 13:

The claim 13 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the visual characteristic is altered as a function of subscriber services selected by a user. However, Takala further discloses the claim limitation that the visual characteristic is altered as a function of subscriber services selected by a user (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55; see column 8-9*).

Claim 14:

The claim 14 encompasses the same scope of invention as that of the claim 13 except additional claim limitation that the visual characteristic is altered as a function of subscriber services selected with the data input device.

However, Takala further discloses the claim limitation that the visual characteristic is altered as a function of subscriber services selected with the data input device (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55; column 8-9*).

Claim 15:

The claim 15 encompasses the same scope of invention as that of the claim 1 except the additional claim limitation of the visual characteristic being altered intermittently. However, Takala further discloses the claim limitation of the visual characteristic being altered intermittently (*e.g., the key press are done intermittently; see column 4, lines 14-43*).

Claim 16:



The claim 16 encompasses the same scope of invention as that of the claim 15 except additional claim limitation that the visual characteristic is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating an input region of the device corresponding to the designated area. However, Takala further discloses the claim limitation that the visual characteristic is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating an input region of the device corresponding to the designated area (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55*).

Claim 17:

The claim 17 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of sending a signal to the input device to trigger altering of the visual characteristic. However, Takala further discloses the claim limitation of sending a signal to the input device to trigger altering of the visual characteristic (*e.g., the press of the selector can be detected and located as a local increase of electrical conductivity in the ER layer, using constant voltage between the perpendicularly oriented conductor layers surrounding the ER layer and the down movement of the key can be achieved by increasing the magnitude of the electric and/or magnetic field applied to the layer of material whose volume decreases with an increase in the magnitude of the electric and/or magnetic field, in the position where the local increase of electrical conductivity was detected in the ER layer; see column 4, lines 14-43; column 8, lines 19-65*).

Claim 18:

The claim 18 encompasses the same scope of invention as that of the claim 17 except additional claim limitation that the signal is sent from a remote location over a cellular or other wireless network or communication system. However, Takala further discloses the claim limitation that the signal is sent from a remote location over a cellular or other wireless network or communication system (*e.g., the integration of various different electronic devices into one common device, e.g., the integration of a computer, a mobile device, a PDA and a camera into a single device; column 6, lines 21-57; column 5, lines 1-12 and column 3, lines 30-55*).

Claim 19:

The claim 19 encompasses the same scope of invention as that of the claim 18 except additional claim limitation that the signal provides data to identify both a series of graphics and key functions associated with each graphic. However, Takala further discloses the claim limitation that the signal provides data to identify both a series of graphics and key functions associated with each graphic (*e.g., column 5, lines 50-65 and column 7, lines 24-41*).

Claim 20:

The claim 20 encompasses the same scope of invention as that of the claim 17 except additional claim limitation that the signal activates a graphic already resident in memory with the device. However, Takala further discloses the claim limitation that the signal activates a graphic already resident in memory with the device (*e.g., Takala discloses creating the user interface to create a key or keys to the key element, retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field; column 8, lines 39-65*).

Claim 21:

The claim 21 encompasses the same scope of invention as that of the claim 17 except additional claim limitation that the signal includes data describing a graphic previously unknown to the device. However, Takala further discloses the claim limitation that the signal includes data describing a graphic previously unknown to the device (*column 8, lines 39-65*).

Claim 22:

The claim 22 encompasses the same scope of invention as that of the claim 1 except additional claim limitation that the desired graphic label corresponds to a language-specific variant of an alphabetical character. However, Takala further discloses the claim limitation that the desired graphic label corresponds to a language-specific variant of an alphabetical character (*column 3, lines 9-20 and column 8, lines 39-65*).

Claim 23:

The claim 23 encompasses the same scope of invention as that of the claim 22 except additional claim limitation of detecting manipulation of a specific key of the keypad and, in response to detecting said manipulation, replacing a first language-specific variation of an alphabetic character associated with an alphanumeric key last manipulated before the specific key was manipulated, with a second language-specific variation of an alphabetic character associated with an alphanumeric key. However, Takala further discloses the claim limitation of detecting manipulation of a specific key of the keypad and, in response to detecting said manipulation, replacing a first language-specific variation of an alphabetic character associated with an alphanumeric key last manipulated before the specific key was manipulated, with a second language-specific variation of an alphabetic character associated with an alphanumeric key (*column 3, lines 9-20 and column 8, lines 39-65*).

Claim 24:

Takala teaches a data input device comprising

An input surface defining a designated input area (*e.g., using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-6, column 5, lines 50-65 and column 7, lines 24-40*); and

A sensor disposed beneath the designated input area and responsive by manipulation of the input surface by a user to register an input associated with the designated area (*e.g., the key pressure can be detected directly from layer 13 by means of sensors measuring the electric field or by replacing the ER layer and its surrounding conductor layers with a layer of touch-sensitive material; see column 7, lines 41-55; see also the sensor-based layer solutions; column 8, lines 19-65*);

Wherein the designated input area contains a field-stable electrophoretic ink responsive to passing a field (*electric field; column 5, lines 50-65*) there through to alter a visual characteristic of the ink in selected regions to form a desired graphic label visible within the designated area (*E-ink is a field-stable electrophoretic ink and Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the*

*key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; column 5, lines 50-65 and column 8, lines 19-65).*

Claim 25:

The claim 25 encompasses the same scope of invention as that of the claim 24 except additional claim limitation of a digitizer. However, Takala further discloses the claim limitation of a digitizer (column 3, lines 30-55).

Claim 26:

The claim 26 encompasses the same scope of invention as that of the claim 25 except additional claim limitation that the designated area is a closed area surrounded by other input areas of the digitizer and forms an adaptable button. However, Takala further discloses the claim limitation that the designated area is a closed area surrounded by other input areas of the digitizer and forms an adaptable button (*e.g., column 3, lines 30-55, column 4, lines 14-43 and column 5, lines 50-65*).

Claim 27:

The claim 27 encompasses the same scope of invention as that of the claim 24 except additional claim limitation that the designated input area is of an exposed surface of a manipulable keycap. However, Takala further discloses the claim limitation that the designated area is of an exposed surface of a manipulable keycap (*keys protrude from the surface of the key*

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*element in column 8. See also Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20).*

Claim 28:

The claim 28 encompasses the same scope of invention as that of the claim 27 except additional claim limitation that the input device is a keypad wherein the keycap is manipulated by a user to depress the keycap relative to the keypad. However, Takala further discloses the claim limitation that the input device is a keypad wherein the keycap is manipulated by a user to depress the keycap relative to the keypad (*Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20 and column 7, lines 23-41*).

Claim 29:

The claim 29 encompasses the same scope of invention as that of the claim 24 except additional claim limitation of an electric field. However, Takala further discloses an electric field (*Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20*).

Claim 30:

The claim 30 encompasses the same scope of invention as that of the claim 29 except additional claim limitation that the electric field is generated by electrically conductive elements within the device. However, Takala further discloses the claim limitation that the electric field is generated by electrically conductive elements within the device (*column 6, lines 21-40*).

Claim 31:

The claim 31 encompasses the same scope of invention as that of the claim 30 except additional claim limitation of the input device being a keypad, the designated area being of an exposed surface of a manipulable keycap of the keypad, and wherein at least one of the

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electrically conductive elements is disposed within the keycap. However, Takala further discloses the claim limitation of the input device being a keypad (column 3, lines 10-20), the designated area being of an exposed surface of a manipulable keycap of the keypad (*keys protrude from the surface of the key element in column 8. See also Fig. 1 and column 4, lines 55-67 and column 5, lines 1-12; column 6, lines 2-20*), and wherein at least one of the electrically conductive elements is disposed within the keycap (*Fig. 1 and column 5, lines 50-67, column 6, lines 1-40*).

## Claim 32:

The claim 32 encompasses the same scope of invention as that of the claim 31 except additional claim limitation that the electrically conductive elements are disposed within the keycap and electrically isolated from each other and disposed to overlap in plan view, with each conductive element shaped to provide a different graphic image visible from the exposed key surface. However, Takala further discloses the claim limitation that the electrically conductive elements are disposed within the keycap (column 6, lines 21-40) and electrically isolated from each other and disposed to overlap in plan view (*the key-based user interface has a flat surface when the electric field is switched off; see column 4, lines 45-50 and Figs. 2-3*), with each conductive element shaped to provide a different graphic image visible from the exposed key surface (*Fig. 3, column 5, lines 50-65 and column 8, lines 39-65*).

## Claim 33:

The claim 33 encompasses the same scope of invention as that of the claim 30 except additional claim limitation of the input device in the form of a keypad with the designated area defined on an exposed surface of a manipulable keycap of the keypad wherein the electrically

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conductive elements are disposed on a substrate beneath the keycap. However, Takala further discloses the claim limitation of the input device in the form of a keypad (column 3, lines 10-20) with the designated area defined on an exposed surface of a manipulable keycap of the keypad (Fig. 1 and column 4) wherein the electrically conductive elements are disposed on a substrate beneath the keycap (*e.g., the electric field sensors installed in the electric field matrix 14 of Fig. 1 controlling the layer 13; see column 4, lines 14-43 and column 6, lines 1-57*).

## Claim 34:

The claim 34 encompasses the same scope of invention as that of the claim 33 except additional claim limitation that the keycap is formed of a material that conducts electricity along a single axis. However, Takala further discloses the claim limitation that the keycap is formed of a material that conducts electricity along a single axis (*column 4, lines 14-43*).

## Claim 35:

The claim 35 encompasses the same scope of invention as that of the claim 30 except additional claim limitation that the electrically conductive elements form an active matrix of transistors. However, Takala further discloses electrically conductive elements forming an active matrix of transistors for conducting electric signals (column 4, lines 14-43 and *column 6, lines 1-57*).

## Claim 36:

The claim 36 encompasses the same scope of invention as that of the claim 24 except additional claim limitation that the sensor comprises a capacitive array of conductive traces responsive to location of a finger above the designated area of the input surface. However, Takala further discloses the claim limitation that the sensor comprises a capacitive array of



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conductive traces responsive to location of a finger above the designated area of the input surface (e.g., *the layer comprising material whose volume is responsive to field magnitude is controlled by an electric and/or magnetic field matrix 14 of Fig. 1 that is formed of a set of electrodes and/or coils and the filed matrix 14 is a passive or active matrix known from prior art. column 6, lines 1-57).*

## Claim 37:

The claim 37 encompasses the same scope of invention as that of the claim 24 except additional claim limitation of the input device in combination with a remote printer placed in close proximity to the designated area and adapted to generate and pass the field through the ink of the device. However, Takala further discloses the claim limitation of the input device in combination with a remote printer placed in close proximity to the designated area and adapted to generate and pass the field through the ink of the device (e.g., *digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55).*

## Claim 38:

Takala teaches a method of changing the visual appearance of keys of a keypad, the method comprising

Providing an assembled keypad (column 3, lines 10-20 and Fig. 1) with at least one key having an elevated, exposed key surface manipulable by a user (column 4, lines 14-43 and keys protrude from the surface of the key element; column 7, lines 24-41 and column 8, lines 19-65) to depress the key relative to the keypad (column 4, lines 14-43), the key containing multiple electrically conductive elements electrically isolated from each other (columns 3-4 and 6) and disposed to overlap in plan view (*the key-based user interface has a flat surface when the electric field is switched off; see column 4, lines 45-50 and Figs. 2-3*), with each conductive element shaped to provide a different graphic image visible from the exposed key surface (e.g., *column 5, lines 50-65 and also column 4-5 Takala discloses using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-67 and column 7, lines 24-40*);

Selecting from among the graphic image associated with the electrically conductive elements (e.g., *column 5, lines 50-65 and also column 4-5 Takala discloses using the key device, an electronic drawing board can be implemented in which at least a part of the key element will be left as a flat drawing surface on which it is possible to draw by pressing the surface with a suitable pen or a finger and the pressure on the surface can be effectively detected in the ER layer with the surface raised up at the position of pressure by increasing the magnitude of the*

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*electric and/or magnetic field applied to the layer comprising a material whose volume expands with the added magnitude of the electric and/or magnetic field, thus creating a three-dimensional plot; see column 4, lines 55-67 and column 7, lines 24-40); and*

Passing an electric field through a selected conductive element in the key to form desired graphic label visible at the exposed surface of the key (e.g., column 5, lines 50-65 and also in column 4-5 Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12; Takala discloses providing E-ink and determining the height of the raised surface based on the magnitude or the duration of the key press, which may be used to improve visualization by varying the output height from the surface. If three-dimensionality is not needed, but a drawing plot is enough, this can be achieved effectively by controlling the imaging in the E-ink layer and this can be preferably implemented in the matrix controlling the E-ink layer, by darkening the surface at the touched spot; column 5, lines 1-12).

Claim 39:

Takala teaches a method of changing the visual appearance of a designated area of a data input device, the method comprising

Placing the device adjacent a printer capable of generating a field (e.g., *Takala implicitly discloses a remote printer by disclosing digital divergence means and the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55*); and

Passing a field from the printer through the designated area of the device to remove a previously applied graphic label from the designated area while forming a new graphic label visible within the designated area (e.g., *Takala discloses the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65. Takala discloses creating the user interface to create a key or keys to the key element, retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field wherein the memory refers to the printer memory; column 8, lines 39-65*).

Claim 40:

The claim 40 encompasses the same scope of invention as that of the claim 39 except additional claim limitation that the designated area of the device contains an electrophoretic ink

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responsive to the field applied by the printer. However, Takala further discloses the claim limitation that the designated area of the device contains an electrophoretic ink responsive to the field applied by the printer (e.g., *Takala discloses the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65. See the E-ink in column 6).*

## Claim 41:

The claim 41 encompasses the same scope of invention as that of the claim 39 except additional claim limitation of the field-stable ink. However, Takala further discloses E-ink which is field-stable ink (see column 6).

## Claim 42:

The claim 42 encompasses the same scope of invention as that of the claim 39 except additional claim limitation that the input device is an assembled keypad wherein the printer is placed in close proximity to exposed surfaces of keycaps of the assembled keypad. However, Takala further discloses the claim limitation that the input device is an assembled keypad (column 3, lines 10-20) wherein the printer is placed in close proximity to exposed surfaces of keycaps of the assembled keypad (e.g., *digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the*

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*keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55).*

Claim 43:

Takala teaches a method of altering format of previously entered text through a keypad, the method including

Detecting manipulation of a specific key of the keypad (*for keypad, see column 3, lines 10-20; e.g., the layered key element for the key that is the object of the invention can be crated preferably by sandwiching a layer of a material whose volume is responsive to the magnitude of an electric or magnetic field and a layer of a material whose electrical conductivity is responsive to pressure, with electric or magnetic field matrices controlling these layers and constructed from a set of electrodes and/or coils when using a magnetic field; these can preferably be active or passive matrices. In addition to these layers, an E-ink layer can be sandwiched on the key element and this makes it possible to integrate a display with key element and a layer of material can be placed below the E-ink layer and its control matrix; see column 3, lines 30-55 and column 4; see also column 6-8); and*

In response to detecting manipulation (column 6), replacing a displayed, selected text with a differently formatted version of the selected text (*The keypad is implemented according to the language specific settings, one keypad for different languages is implemented and one keypad for different devices; e.g., user interface can be changed from a word processor keyboard into a camera user interface; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels*

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*form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65), according to a predetermined series of formats through which the selected text is cycled upon multiple, sequential manipulations of the specific key (The keypad is implemented according to the language specific settings, one keypad for different languages is implemented and one keypad for different devices; e.g., user interface can be changed from a word processor keyboard into a camera user interface; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65; see also column 6-8).*

## Claim 44:

The claim 44 encompasses the same scope of invention as that of the claim 43 except additional claim limitation that the series of formats include underlined, bold and italicized. However, Takala further discloses a word processor keypad with the series of formats including underlined, bold and italicized (column 3).

## Claim 45:

Takala teaches a method of altering information displayed on an operable, designated data input area of a portable electronic device, the method comprising

Providing a data input device with multiple data input areas having visible labels associated with the input areas (*The keypad is implemented according to the language specific settings, one keypad for different languages is implemented and one keypad for different devices;*

*e.g., user interface can be changed from a word processor keyboard into a camera user interface; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65; see also column 6-8); and*

Transmitting a signal to the input device from a remote location to alter the visible label of at least one of the data input areas of the device in response to the signal (*A signal may be generated by the pen or a finger on the input device from a remote location such as a user remote from the input device; see column 4, lines 55-67; and the visible label on the key element is altered in response to the input signal; see column 3-4 and the E-ink material 11 of Fig. 1 in the top layer can be used to display patterns such as text on the surface of the key element by appropriately placing the micro-capsuled pixels in the E-ink layer and the micro-capsuled pixels form the image in the E-ink layer 11 are controlled by an electric field matrix 12 formed of a set of electrodes; column 5, lines 50-65; see also column 6-8. Moreover, in another perspective, the device controlling section 30 and the function block diagram 40 of Fig. 3 has the software stored in the memory unit 34 to control the user interface 42, to create the user interface 41, and to identify functionality 43 wherein creating the user interface include creating a key or keys to the key element and retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field ).*

Claim 46:



The claim 46 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the data input area of the altered label contains a field-stable electrophoretic ink, the signal causing a field to be passed through selected regions of the field-stable electrophoretic ink to alter a visual characteristic of the ink to alter the graphic label.

However, Takala further discloses the claim limitation that the data input area of the altered label contains a field-stable electrophoretic ink, the signal causing a field to be passed through selected regions of the field-stable electrophoretic ink to alter a visual characteristic of the ink to alter the graphic label (*Takala discloses functions implemented by software stored in the memory unit 34 to control the user interface 42, to create the user interface 41 and to identify functionalities 43; column 6-8*).

Claim 47:

The claim 47 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the altered visible label contains one of advertisement, location, time or subscription-specific information. However, Takala further discloses that the altered visible label contains one of advertisement, location, time or subscription-specific information (*e.g., digital divergence means the integration of various different electronic devices into one common device including the controlling of a remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55; Takala discloses displaying the signals on the keypad generated by the TV through the device*

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*controlling section 30 and the function block diagram 40 of Fig. 3 having the software stored in the memory unit 34 to control the user interface 42, to create the user interface 41, and to identify functionality 43 wherein creating the user interface include creating a key or keys to the key element and retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field).*

Claim 48:

The claim 48 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the signal is transmitted to the input device over a cellular or other wireless network or communication system. However, Takala further discloses the claim limitation that the signal is transmitted to the input device over a cellular or other wireless network or communication system (*the device controlling section 30 and the function block diagram 40 of Fig. 3 has the software stored in the memory unit 34 to control the user interface 42, to create the user interface 41, and to identify functionality 43 wherein creating the user interface include creating a key or keys to the key element and retrieving values for the local fields in the field matrices of the key element from memory and these values will then be input to the means for altering the field).*

Claim 49:

The claim 49 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the label is altered as a function of subscriber service selected by a user. However, Takala implicitly discloses the claim limitation that the label is altered as a function of subscriber service selected by a user (*e.g., digital divergence means the integration of various different electronic devices into one common device including the controlling of a*

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*remote printer, a text TV set wherein a user interface comprising keys can at one time be used as the keyboard of a computer, at another time as a game controller with a few selectors and at a third time as the remote control for a text TV set and the printer is connected to the computer and the keyboard can be used to generate electric fields and passing the electric fields to the printer; see column 3, lines 30-55).*

## Claim 50:

The claim 50 encompasses the same scope of invention as that of the claim 45 except additional claim limitation of receiving a label triggering signal from the data input device prior to transmitting said signal. However, Takala further discloses the claim limitation of receiving a label triggering signal from the data input device prior to transmitting said signal (e.g., receiving a key press triggering a key depression signal from the data input device; column 6).

## Claim 51:

The claim 51 encompasses the same scope of invention as that of the claim 45 except additional claim limitation of the label being altered intermittently. However, Takala further discloses the key presses being entered intermittently and displaying the images generated by the key presses on the E-ink material (column 5).

## Claim 52:

The claim 52 encompasses the same scope of invention as that of the claim 51 except additional claim limitation that the label is altered intermittently to provide a series of graphics identifying third parties accessible by manipulating the data input area associated with the label. However, Takala further discloses the claim limitation that the label is altered intermittently to

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provide a series of graphics identifying third parties accessible by manipulating the data input area associated with the label (column 5, lines 50-65).

Claim 53:

The claim 53 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the transmitted signal provides data to identify both a series of graphics and key functions associated with each graphic. However, Takala further discloses the claim limitation that the transmitted signal provides data to identify both a series of graphics and key functions associated with each graphic (column 5, lines 50-65).

Claim 54:

The claim 54 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the transmitted signal activates a graphic already resident in memory within the device. However, Takala further discloses the claim limitation that the transmitted signal activates a graphic already resident in memory within the device (column 8, lines 39-65).

Claim 55:

The claim 55 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the signal includes data describing a graphic previously unknown to the device. However, Takala further discloses the claim limitation that the signal includes data describing a graphic previously unknown to the device (column 9, lines 29-34).

Claim 56:

The claim 56 encompasses the same scope of invention as that of the claim 45 except additional claim limitation that the data input areas are exposed surfaces of manipulable keycaps.

However, Takala further discloses the claim limitation that the data input areas are exposed surfaces of manipulable keycaps (column 3-4).

Claim 57:

The claim 57 encompasses the same scope of invention as that of the claim 56 except additional claim limitation that the input device is a key pad wherein the keycaps are manipulated by a user to depress the keycaps relative to the keypad. However, Takala further discloses the claim limitation that the input device is a key pad (column 3, lines 10-20) wherein the keycaps (key elements) are manipulated by a user to depress the keycaps relative to the keypad (column 3-4).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (571) 272-7664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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